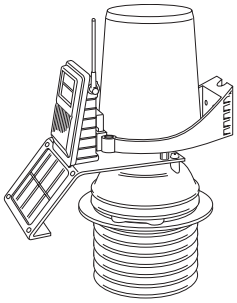
Integrated Sensor Suite with Fan-Aspirated Radiation Shield

For Vantage Pro2™ and Vantage Pro2 Plus™
Installation Instructions Addendum



The Vantage Pro2™ Integrated Sensor Suite (ISS) with the Fan-Aspirated Radiation Shield uses a combination of fan-aspiration and shielding to minimize temperature measurement errors due to the effects of solar radiation.

Fan-Aspirated ISS Addendum Overview

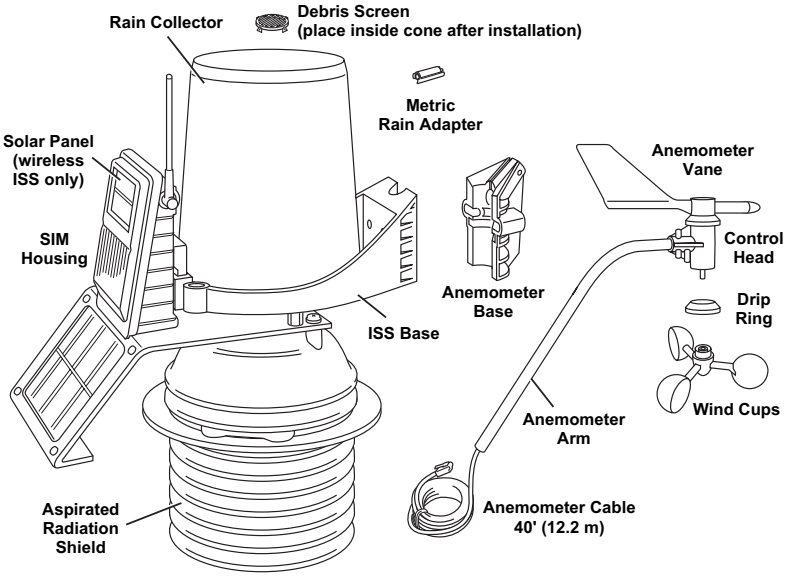
This addendum provides additional information specific to the installation and use of ISS models containing the fan-aspirated radiation shield only, and is intended to be used in conjunction with the "Integrated Sensor Suite Installation Manual."

The table below shows the location of the information required to install and maintain your Fan-Aspirated ISS system.

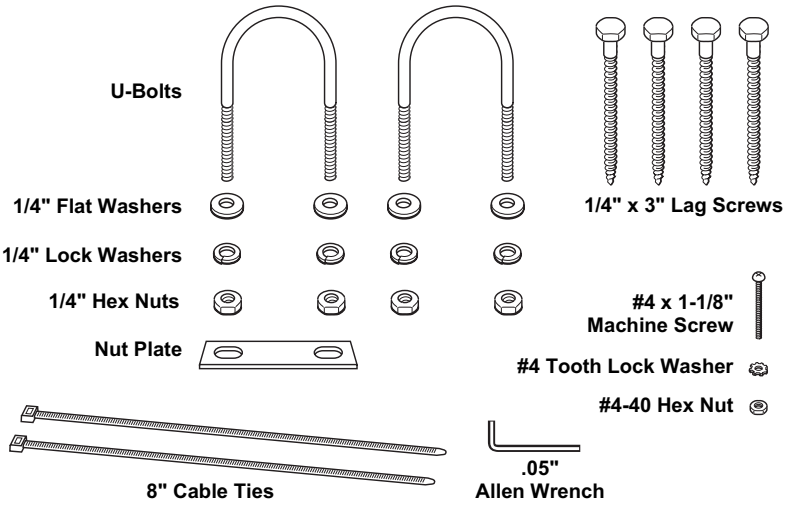
Section/Procedure	In This Addendum	In the ISS Installation Manual
Tools for Setup		X
Preparing the Anemometer		X
Preparing the Rain Collector	X	X
Preparing the Radiation Shield	X	
Powering ISS and Testing Communications		X
Powering and Testing the Fan	X	
Choosing a Site for the ISS		X
Mounting the ISS		X
Additional Mounting Options		X
Fan-Aspirated ISS Maintenance	X	
Theory of Operation	X	
Fan-Aspirated ISS Troubleshooting	X	
Fan-Aspirated ISS Specifications	X	

Components

The Fan-Aspirated ISS includes these components:



The hardware shown here is provided for assembly and mounting:

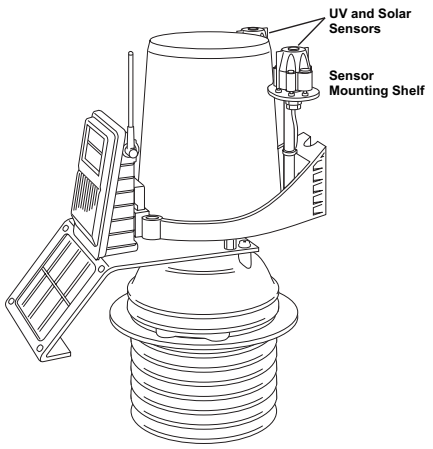


Additional Components on Vantage Pro Plus

Vantage Pro2 Plus™ includes an ultraviolet (UV) sensor and a solar radiation sensor. These two sensors are mounted next to the rain collector on your ISS

See the Integrated Sensor Suite about mounting and maintaining these sensors.

Do not to touch the small white diffusers on top of the UV and solar radiation sensors. Oil from the skin reduces sensor sensitivity.



Tools for Installation

Refer to this section in your ISS Installation Manual on assembling the anemometer.

Preparing the ISS for Installation

Refer to this section in your ISS Installation Manual on assembling the anemometer.

Preparing the SIM for Installation

The ISS sensors are connected by cables to the **Sensor Interface Module** (SIM), located inside the SIM housing. The SIM contains electronics that measure and store weather values for transmission to the console via radio. The SIM housing protects the SIM from the elements and provides easy access to SIM cable connections.

See the ISS Installation manual on checking the sensor connections to the SIM and for any additional sensor and wireless installation instructions.

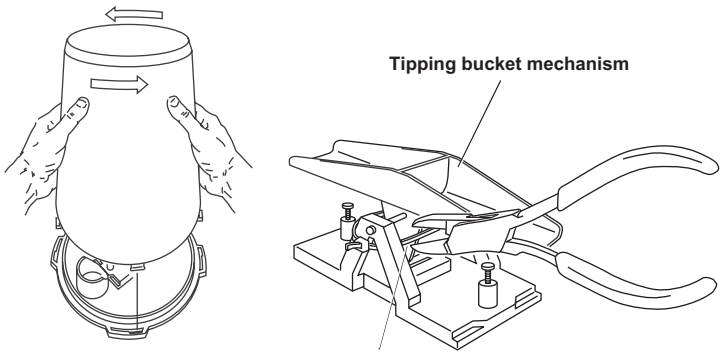
Preparing the Rain Collector

Follow these steps to prepare the rain collector for operation.

1. Remove the rain collector cone from its base by rotating the cone counter-clockwise until its latches line up with openings which allow you to lift it off. The cone fits in the base tightly and may require extra pressure to remove it when new.

Note: Steady the base between your knees when you rotate the rain collector.

2. Carefully cut and remove the plastic cable tie (usually black in color) that holds the two-sided tipping bucket mechanism in place during shipping.



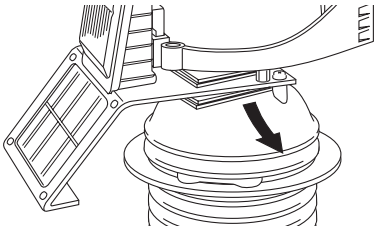
Preparing the Rain collector

Note: If installed, the UV and solar radiation sensor cables are routed through the base of the rain collector. Please make sure they do not get moved and make sure they do not interfere with the tipping bucket mechanism or with latching the cone back onto the base. See the ISS Installation Manual for instructions on inserting the optional metric measurement adapter.

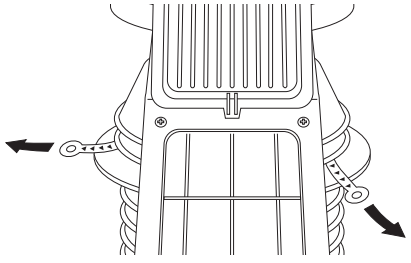
Preparing the Fan-aspirated ISS for Installation

The radiation shield, fan, and solar panel used to power the fan come pre-assembled with the ISS unit and require no additional assembly. However, the fan requires initial power from the pre-installed batteries. Tabs are included to ensure that the batteries that are installed in the fan-aspirated housing do not power the unit during shipping. To power the fan-aspirated unit.

1. Remove the cardboard packing inserts between the passive shielding, the solar panel, and the rain collector base and discard.



2. Pull the tabs on the outside of the shielding slowly.
3. Listen for a slight whir coming from the bottom of the ISS unit. This sound signifies that the fan is running.



Applying Power and Testing Communications

Powering the ISS and Testing Communication with the Console

Refer to Wireless ISS Assembly section in your ISS Installation Manual for the rest of the procedures required to power and test the ISS.

Locating the ISS and Anemometer

Refer to this section in your ISS Installation Manual.

Mounting the ISS

The fan-aspirated version of the ISS, is mounted and installed just like the regular version of the ISS. Refer to this section in your ISS Installation Manual to mount the ISS.

Additional Mounting Options

Refer to this section in your ISS Installation Manual.

Fan-Aspirated ISS Installation Options

Batteries

The Wireless Fan-Aspirated ISS is solar powered and is supplied with two NiCad C-cell batteries that come pre-installed. The following options for battery power exist:

- Use two fan batteries for maximum length of overnight aspiration but with slightly lower average daytime aspiration.
- Use only one fan battery for some overnight aspiration but with slightly higher average daytime aspiration.
- Remove both batteries for maximum daytime aspiration and no night-time aspiration.

Fan-Aspirated ISS Maintenance

- Keep the surfaces clean, since the Fan-Aspirated Radiation Shield is less effective when the surfaces are dirty. Remove dust from the solar panel and the shield with a damp cloth.
- Remove any debris obstructing air flow through the radiation shield, e.g., leaves, twigs, webs, and nests.
- Avoid spraying insect killer of any kind into the radiation shield as this may damage the sensors and the shield.
- Once a year: replace the motor (Part # 7758), batteries, and remove any debris lodged inside the unit.

Disassemble the Radiation Shield

Disassemble the radiation shield for routine cleaning, maintenance, and to replace the batteries and motor. To disassemble the shield:

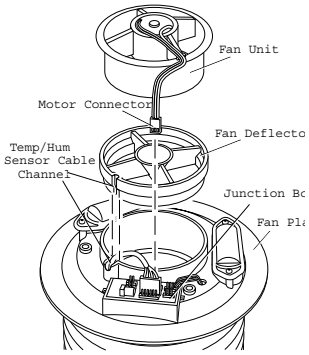
1. Remove the three screws connecting the rain collector base to the mounting bracket.
2. Lift the rain collector base off of the mounting bracket.

Note: For easier re-assembly, mark the holes used by the rain collector base, the holes used by the radiation shield, and the orientation of the bracket relative to the radiation shield.

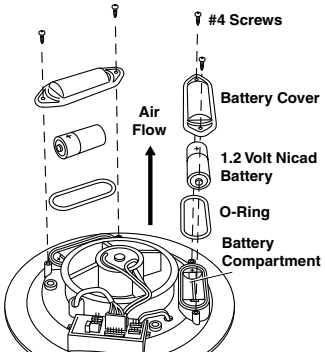
3. Remove the three (3) screws connecting the mounting bracket to the radiation shield.
4. Lift the mounting bracket off of the radiation shield.
5. Remove all debris from inside the shield and replace the batteries if necessary.

Annual Maintenance

1. Retrieve your Fan-Aspirated ISS and place on a stable work surface.
2. Disassemble the radiation shield.
3. Unplug the old motor and remove from it from the Radiation Shield.
4. Install the new motor/fan assembly.



5. Remove the fan batteries.
6. Install new batteries (NiCad C-cells).
7. Assemble the Radiation Shield.
8. Re-mount the Fan-Aspirated Radiation Shield in its previous location.



Fan-Aspirated ISS Troubleshooting

If you are experiencing problems with your Fan-Aspirated ISS, first be sure to check all cable connections. If you are unable to solve the problem, please call Davis Technical Support. We'll be glad to help. Most questions can be answered while you're on the phone. You can also e-mail us for support, or visit our website. Sorry, we are unable to accept collect calls.

Note: Please do not return items to the factory for repair without prior authorization.

Contacting Davis Instruments

(510) 732-7814 for Technical Support, Monday – Friday, 7:00 a.m. – 5:30 p.m. Pacific Time.

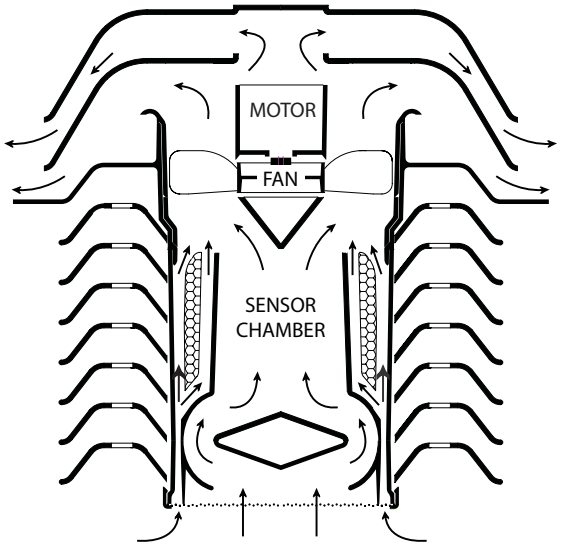
support@davisnet.com E-mail to Technical Support.

(510) 670-0589 Fax to Customer Service or Tech Support.

www.davisnet.com Copies of User Manuals are available on the "Support" page. Watch for FAQs and other updates. Subscribe to the e-newsletter.

Theory of Operation

The diagram below shows how the Fan-Aspirated Radiation Shield draws outside air up through the sensor chamber and between the three walls surrounding the sensor chamber.



Cross-section of Fan-Aspirated Radiation Shield

Fan-Aspirated ISS Specifications

Aspiration Rate	190 ft./min. (.96 m/s) (solar-powered, full sun), 80 feet/min. (0.4 m/s) (battery only)
Radiation-Induced Temperature Error	0.5°F (0.3°C) [At solar noon, insolation = 1040 W/m2]

	(Reference: RM Young model 43408)
Operating Temperature	–40° to +140° F (–40° to +60° C)
Non-operating Temperature	–50° to +158° F (–45° to +70° C)
ISS Primary Power Input	
Wireless ISS	solar panel
ISS secondary power	CR-123A 3-volt lithium battery (8 months without sunlight to greater than two years depending on solar charging)
Fan Primary Power Input	
Wireless ISS.	solar panel
Fan secondary power	1 or 2 - 1.2 Volt NiCad C-cells

FCC Part 15 Class B Registration Warning

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modification not expressly approved in writing by Davis Instruments may void the warranty and void the user's authority to operate this equipment.

IC: 378810-6328

EC EMC Compliance

This product complies with the essential protection requirements of the EC EMC Directive 89/336/EC.

Addendum, Fan-Aspirated ISS Installation

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